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ABSTRACT

A matrix model for the collection, management, and utilization of data was developed at Eastern Iowa Community College District, (Davenport, Iowa) for evaluating institutional effectiveness. The model was examined in relation to various assessment instruments and the evaluation of functional areas and programs. Surveys of six different target groups were conducted for each program under review; these groups were: program administrators; part-time faculty; currently enrolled students; graduates of the program during the last three years; program advisory council members; and employers of program graduates. The process of constructing the matrix required a thorough examination of each survey instrument, the identification of items common to the various surveys, and the determination of uniformity in measurement of those various functional areas or components. This resulted in the design of two matrices: the Program Evaluation matrix and the Student Survey matrix. The matrix model facilitated integration of data from a variety of survey instruments into a composite report on any given service or functional area. An additional outcome of the matrix model was that it provided a rationale for the revision of survey instruments. Contains four references. (GLR)

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The Eastern Iowa Community College District Data Collection Matrix Model: A Tool for Functional Area and Program Evaluation

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Jean Endo
Chair and Editor
Forum Publications Editorial
Advisory Committee

The Eastern Iowa Community College District

Data Collection Matrix Model:

A Tool for Functional Area and Program Evaluation

Introduction

Increasing emphasis on the assessment of institutional effectiveness in recent years has stimulated a flurry of discussion and action at the institutional, state, accrediting agency, and federal levels. Both internal and external forces have contributed to the interest in formulating a comprehensive model to assess institutional effectiveness; such a model might include a variety of means of assessment and evaluation of institutional processes and outcomes.

In many institutions, the evaluation of programs and administrative/support units, as well as the completion of other internal and state/federal reports have been routinely conducted for many years; all of these activities might be appropriate components of a comprehensive institutional effectiveness model. Therefore, it makes sense for institutions to take an inventory of their existing processes and reports before devising an entirely new set of measures, instruments, and procedures solely for the assessment of institutional effectiveness. Indeed, Nichols (1989) advises institutions undertaking the establishment of an institutional effectiveness process to examine existing data sources, surveys, and reports as a first step to discover the measures of institutional effectiveness that already exist before proceeding to develop new measures.

Apparently that strategy has been adopted by many institutions in their development of institutional effectiveness processes. In a survey of 33 large research universities, Ory & Parker (1989) found that many are responding to mandates for institutional effectiveness information by "repackaging" or "renaming" their existing programs as assessment activities. Rogers & Gentlemann (1989) also found that many institutions are already engaged in a variety of planning and evaluation processes that comprise a comprehensive assessment of institutional effectiveness.

Hence, in attempting to formulate a comprehensive plan to assess institutional effectiveness, the Eastern Iowa Community College District (EICCD) started by conducting an inventory of its existing evaluation, assessment, and student follow-up processes. Like many other institutions, the Eastern Iowa Community College District conducts a variety of surveys as a part of its program evaluation process, its assessment of students currently enrolled at its colleges, and its follow-up of former students. Each of these surveys collects information regarding various program components and services, as well as functional areas of the colleges.

Each report summarizing the survey results is issued independently of other survey reports. The information about any specific service, component, or functional area is scattered throughout the reports of various assessment and survey instruments. This phenomenon has made it extremely difficult for

administrators and decision-makers to have a clear picture of any given functional area.

The institutional research staff undertook to develop an evaluation model applicable to services and functional areas within the organization as one component of its institutional effectiveness plan. As an alternative to developing an entirely new set of evaluation instruments, the staff developed a matrix to integrate the data regarding specific functional areas from the numerous existing assessment sources.

Method

Development of the matrices

As a part of its Program Evaluation Process (Friedel & Papik, 1986), the EICCD conducts surveys of six different target groups for each program under review. These survey groups are as follows: program administrators, part-time faculty, currently enrolled students, graduates of the program during the last three years, program advisory council members, and employers of program graduates. Full-time faculty conduct a self-study as a component of the program evaluation process, and therefore are not currently included in the target groups to be surveyed with a paper and pencil instrument.

In addition, surveys of current students, recent graduates, non-returning students, and former students are conducted on a regular basis. Each of these surveys asks the respondents to rate or evaluate several different functional areas and services such as the library, job placement services, advising, counseling, and

registration, as well as program components such as instructor availability, instructional resources, equipment, and instructional materials.

The items from these various surveys comprised the data for the construction of the data collection matrix. The process of constructing the matrix required a thorough examination of each survey instrument, the identification of items common to the various surveys, and the determination of uniformity in measurement of those various functional areas or components. This examination resulted in the design of two matrices that depict the items across a variety of surveys which evaluate a given function.

Applications of the matrix model

The primary result of the development of the matrices was to facilitate providing a cross-survey presentation of the evaluations of various functional service areas to the directors and staff of those services areas. In addition, the matrices were examined in detail to discover gaps in the content areas of the various surveys, discrepancies in the measurement scales for similar items, and items that might benefit from modification resulting in greater consistency across instruments. The matrix model was tested by applying the student survey matrix to the functional area of job placement services.

Results

The matrices

Because the focus of the two sets of surveys differ, two matrices were initially developed, a Program Evaluation matrix and

a Student Survey matrix. It is anticipated that further refinement of the matrix model may result in a combined matrix that will encompass both sets of surveys. Indeed, the two matrices share two major categories of items, while differing on the remaining two categories.

The Program Evaluation matrix is shown in Table 1. As can be seen, the items from the six program evaluation surveys fall into four major groups: background, process items, outcome items, and general ratings. The process items are further subdivided into curriculum, faculty, resources, student & support services, and general process items. The outcome items are further subdivided into general outcomes, job placement/transfer services, and skills.

The Student Surveys matrix is shown in Table 2. As can be seen, the items from the four student surveys also fall into four major groups: background, instructional items, student services items, and general ratings. The instructional items are further subdivided into items relating to curriculum, students' educational plans, current educational status, and occupational status. The student services items are further subdivided into activities, admissions/registration, counseling, financial aid, job placement, and general student services.

Test application of the model

The first test of the model was conducted on the functional area of job placement. The first level of examination is the survey instruments themselves. Survey respondents are asked for

Table 1

PROGRAM EVALUATION PROCESS - ITEM MATRIX

This matrix shows the item number from each of the survey instruments included in The FICCD Program Evaluation Process which covers the topic listed. The survey groups are as follows:

AD - Administrators
PTF - Part time faculty
S - Students currently enrolled in the program
G - Graduates of the program
AC - Advisory Council members
E - Employers of program graduates

	SURVEY GROUP					
	AD	PTF	S	G	AC	E
BACKGROUND ITEMS						
Verification	-	-	1	1	16	1
Miscellaneous Background Items - Students, Graduates, Advisory Council Members, and Employers were asked relevant questions to determine their relationship to the program that differed for each group. Administrators and Part Time Faculty were not asked any background or verification items.						
PROCESS ITEMS						
Curriculum						
Objectives:						
available	7	-	10	20	-	-
accurate	-	-	11	20	-	-
used appropriately	-	-	12	20	-	-
Courses in program available, realistic	-	-	-	19	-	-
support courses relevant	-	-	-	22	-	-
Instructional methods	-	-	-	21	-	-
Work experiences available	-	6	-	-	-	-
Program responsive to change & suggestion	-	3,8	-	-	8,9,11	-
Faculty						
Knowledgeable	-	-	8	18	-	-
Have opportunity to develop	2,4	-	-	-	-	-
Available to help, good relationship with students	-	-	14,15	-	-	-
Institutional relationships, leadership	6,9	-	-	-	-	-
Advising	-	-	25,26	-	-	-
Resources						
A variety of resources including facilities, instructional materials, equipment, library resources, and textbooks were rated on the following dimensions:						
Adequacy	10	5,7	19	27	-	-
Availability	-	5	17,18	27	-	-
Relevance	-	7	13	27	-	-
Maintenance	-	-	20	26	-	-
Not gender biased	-	-	-	27	-	-
Student & Support Services						
General & multiple services rated	-	-	-	25	-	-
Guidance & counseling	11	10	16	23	-	-
Job Placement	11	10	16	-	-	-
Transfer information	-	-	23,24	-	-	-
General Process items						
Sense of community, shared purpose	2	-	-	-	-	-
Adequate time for coordination	-	4	-	-	-	-
Effective interaction with other staff	-	11	-	-	-	-

Table 1 continued

OUTCOME ITEMS	SURVEY GROUP AD	PTF	S	G	AC	E
General Outcomes						
Goals achieved	8	-	-	-	-	-
Graduates are better employees	-	-	-	-	6	-
Program meets needs of local labor marker	-	-	-	-	7	-
Job Placement/Transfer Success						
Job Outlook	-	-	-	17	-	11
Employed in field	-	-	-	4,8	-	-
Job success/Students prepared	-	2	27	-	-	-
Transfer	-	-	28	28,29 & 30	-	-
Skills						
Communication (speaking, writing, listening)	-	-	-	9	2	3
Mathematical	-	-	-	10	-	4
Technical knowledge & skill	-	-	-	11	1	5
Human relations	-	-	-	12	3	6
Work habits & attitudes	-	-	-	13	5	7
Problem-solving	-	-	-	14	-	8
Additional skills needed	-	-	-	15	-	9,10
GENERAL RATINGS						
Overall Quality & Image	3,5	-	-	-	-	-
Strengths	-	12	31	-	12	-
Weaknesses/Concerns	-	13	32	-	13	-
Advice & recommendations to students in program	-	-	-	16	-	-
Would recommend program to others	-	-	29	-	-	-
Would recommend college to others	-	-	30	-	-	-
Comments & recommendations for program	-	14	33	31	-	12

Table 2

STUDENT SURVEYS - ITEM MATRIX

This matrix shows the item number from each of the several survey instruments which are sent to current and former students. The surveys are as follows:

- SDQ - Student Data Questionnaire, administered in the third week of classes
- N - Non-returning Student Survey, sent to students who did not return from the previous semester
- G - Graduate Survey, sent each fall to students who graduated in the previous fiscal year
- F - Follow-up Survey, sent each fall to students who have not been enrolled for a full year

	SURVEY			
	SDQ	N	G	F
BACKGROUND ITEMS				
Personal demographics	19-21	3	-	5,6
Disability	27	-	-	-
Family status	22,23	-	-	-
First in family to attend college	12	-	-	-
Resident status	24	-	-	-
Distance from college	25	-	-	-
Educational background	10,11			
Sources of funding for education	13	-	-	-
Reasons for leaving (personal)	-	B2, B4-9, B17,18,20	-	12.1-3,5 12.7-8
INSTRUCTIONAL ITEMS				
Curriculum				
Content of courses	-	-	-	13
Quality of instruction	-	-	-	14
Instructor interest & concern	17.12-13	-	-	15,19
Class size	-	-	-	16
Facilities & Equipment	-	-	-	17,18
Instructional support	-	-	-	20,29,30
Library services	-	-	-	32
Overall educational experience	-	C1	-	21
Educational Plans				
Primary objective	15	5	-	7
Reason for selecting EICCD	16	-	-	-
Intent to complete courses & program	4,5	-	-	-
Did you achieve your objective	-	6	-	8
Do you plan to pursue objective further	-	7	-	-
Interested in other courses	-	C3	-	47
Reason for leaving (academic)	-	B10-16	-	12.4,12.6
Educational Status				
EICCD college/site attended	1,7	1	color	1
Major	3	2	00	4
Full/part time	2	4	-	-
Type of classes (day/evening)	6	-	-	-
Current educational status (not EICCD)	-	C2	1(e),4	9
How long/when attended	8,9	-	-	2
Needs for special help	14	-	-	-
Graduate from program	-	-	-	11
Most recent (other) college attended	-	-	8	35
Transfer experience	-	-	7	36,37,38

Table 2 continued

	SURVEY			
	SDO	N	G	E
Occupational Status				
Current employment status	26	-	1	10,41
Wage information	-	-	5A	42
Employed in field prior to enrolling	-	-	-	45
Job related to coursework	-	B19	2,5	39,40
Rating of educational usefulness	-	-	-	43,44
Availability of jobs	-	-	-	46
Student Services				
Activities				
Student activities	-	-	-	31
Participation in activities	18	-	-	-
College encourages student involvement	17.10	-	-	-
Admissions/Registration				
Rating of admissions	-	-	-	22
Orientation	17.5	-	-	-
Rating of registration	17.7	-	-	23
Rating accuracy of student records	17.6	-	-	-
Counseling				
Assessment & testing	-	-	-	28
Course advisement	17.4	-	-	27
Rating of guidance & counseling	17.2	-	-	26
Availability of info on other institutions	-	-	-	34
Rating of financial aid services	17.1	-	-	24
Financial aid use/availability	-	B21-25	-	-
Rating of veterans services	-	-	-	25
Job Placement Services				
Rating of job placement services	17.3	-	-	33
Information on employment opportunities	-	-	4	-
General Student Services				
Purpose of college	17.8	-	-	-
College responsiveness	17.9,14	-	-	-
Comfortable environment	17.11	-	-	-
GENERAL RATINGS				
Comments	29	C4	8	48

an overall rating of job placement services on both the current student survey (Student Data Questionnaire [SDQ]) and on the Follow-up Survey. Both of these ratings are on a five-point scale, making for comparability on that item. Respondents to the Graduate Survey are asked to indicate whether or not they had received information on employment opportunities from anyone at the college. These respondents are also asked to indicate either the source of any job information or the reason for not receiving information. Job placement services are not rated on the Non-returning Student Survey at this time.

Once the questions being asked of the various groups are clear, the next step in the application of the matrix is to compare the ratings of that functional area by the different respondent groups. Overall ratings of job placement services (on a 5-point scale, with 5 as high, 1 as low, and 3 as neutral) were as follows:

Fall 1988 SDQ 3.21	Fall 1989 SDQ 3.26
Follow-up 1987 3.11	Follow-up 1988 3.16

(The SDQ is administered during the third week of the Fall semester each year. The Follow-up 1987 was sent in the Fall of 1988 to students whose last term of enrollment was during Fiscal Year 1987; the Follow-up 1988 was sent in the Fall of 1989 to students whose last term of enrollment was during Fiscal Year 1988.)

The percentage of graduates who indicated on the Graduate Survey that they had received information on employment opportunities were as follows:

Graduate 1988 33% Graduate 1989 39%

It is clear from this comparison of the ratings of job placement services across the three surveys which include this functional area that the EICCD needs to seriously consider revising the Graduate Survey. This revision must include an overall rating of job placement services in order to make these responses comparable to the responses received on the other two surveys. Consideration may also be given to the possibility of asking directly about the availability of job placement information, sources, and reasons for not receiving information of other respondent groups.

Comparison of the data obtained on the two similar items shows that students who have been away from the institution for at least a year rate the job placement lower than do those who are currently enrolled. We may also observe that the job placement services ratings of both current students and former students have increased in the past year.

Additional outcomes

As stated above, the initial impetus to the development of the data collection matrix was the more efficient and effective dissemination of data collected about specific functional areas to the administrators and staff of those areas. A secondary benefit of the process has been the revision and refinement of the actual

surveys. This refinement was made possible by the discovery of differences among instruments in evaluative scales or item wording, as well as the inadvertent omission of specific services from certain survey instruments. The process has resulted in a more comprehensive, coordinated system of functional area evaluation and program review.

The Eastern Iowa Community College District has recently undertaken a major project to review its transfer program offerings. The Program Evaluation matrix has proved to be a very useful summary of the existing program evaluation survey instruments which have previously been applied to the occupational programs within the District. The Program Evaluation matrix which summarizes the existing survey instruments has served as a springboard for the development of a series of survey instruments designed to evaluate the transfer programs.

Discussion

These matrices provide a snapshot view of how a given functional area is evaluated by a variety of groups. The matrix facilitates integration of data from a variety of survey instruments into a composite report on any given service or functional area. Thus, the data collection matrix allows for the comprehensive presentation of data collected from diverse groups on separate surveys relevant to any specific service or component, resulting in a coordinated and unified picture useful for evaluation of the functional area.

An additional outcome of the matrix model is that it has provided a rationale for the revision of survey instruments. It has provided an opportunity for the re-examination of the reasoning for asking certain questions of each group of respondents within each set of survey instruments.

A comprehensive view of the various functional areas for the determination of institutional effectiveness can be facilitated by requesting similar information and perceptions from more than one group of respondents. This multidimensional strategy allows for comparison among the perceptions of various groups of constituents and for the validation of the perceptions of one group against those of another. For instance, the ratings of their own level of skill in various areas by graduates of a program can be compared to the employers' ratings of the level of the same skills Another example of appropriate comparison of responses is the perception of the program's image by program administrators compared to the image perceived by graduates, by advisory committee members, and by employers of program graduates.

This effort to combine items from a variety of sources has resulted in a matrix template which can be used by other institutions as a guide to the construction of their own unique data collection matrix. Other institutional researchers will be able to utilize the model to examine their own survey instruments to develop a matrix unique to their organizational structure and individual needs.

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